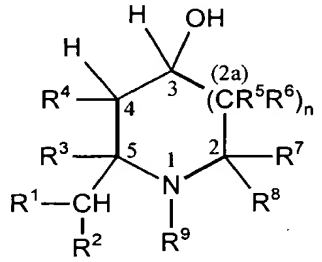
IN THE CLAIMS:

The following listing of claims is intended to replace all prior listings of claims.

LISTING OF CLAIMS

1-16. (canceled)

17. (Currently amended) A process for stereochemically controlled production of a compound corresponding to formula Ia':



Ia'

wherein the R^1R^2CH group in the 5-position of the cyclic parent structure and the hydroxy group in the 3-position of the cyclic parent structure are each in the trans position relative to each other and wherein the substituent R^4 in the 4-position and the hydroxy group in the 3-position of the cyclic parent structure are each in the cis position relative to each other, and wherein

n is 0 or 1,

R^1 is hydrogen;

R^2 is hydrogen;

R^3 is hydrogen, and

R^4 is hydrogen or lower alkyl, or

R^3 and R^4 also together are a C_3-C_6-alkylene chain optionally containing 1 to 3 double bonds or together form the 7, 7-dimethylbicyclo[3.1.1] heptyl-system

R^5 is hydrogen or lower alkyl, and

R^6 is hydrogen, and

R^7 is hydrogen, and

R^8 is hydrogen;

a monocyclic or bicyclic ring system selected from the group consisting of cyclopropyl, cyclopentyl cyclohexyl, phenyl, p-bromophenyl and 3-indolyl;

lower alkyl; phenyl-lower alkyl or lower-alkoxy lower alkyl, or

R^6 and R^7 also together may form a bond, and

R^5 and R^8, together with the carbon atoms to which they are bonded, may form an aromatic C_6-ring system,

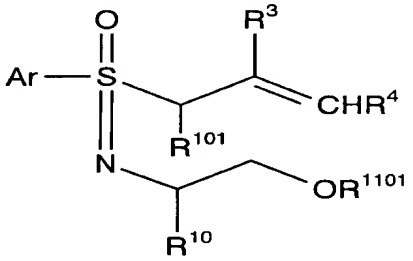
R^9 is hydrogen; lower alkyl; phenyl-lower alkyl optionally substituted one to three times in the phenyl ring by lower alkyl, lower haloalkyl, lower alkoxy or lower haloalkoxy; or an amino protecting group, or

R^8 and R^9 also together may form a C_3-C_4-alkylene chain,

or an acid addition salt thereof, wherein any reactive groups which may be present in said compound of Formula Ia' may be blocked by suitable protecting groups,

said process comprising the steps of:

a) reacting a compound corresponding to formula II:



II

wherein

R^3 and R^4 have the above meanings,

R^{101} has the meaning given above for R^1

Ar represents phenyl optionally substituted one to three times by lower alkyl,

R^{10} is lower alkyl, or phenyl optionally substituted once in the phenyl ring by lower alkyl or by hydroxy protected with a suitable protecting group, or phenyl-lower alkyl optionally substituted once in the phenyl ring by lower alkyl, and

R^{1101} stands for a silyl protecting group,

successively with

(i) a base for the deprotonation thereof,

(ii) an organometallic reagent corresponding to the formula VII:

$$XM^2(OR^{12})_3 \qquad \text{VII}$$

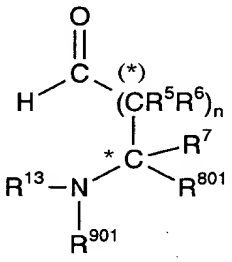
wherein

X is halogen,

M^2 is a tetravalent transition metal, and

R^{12} is lower alkyl, phenyl or phenyl-lower alkyl, and

(iii) a stereoisomer of a compound of the general formula VIII:



VIII

wherein

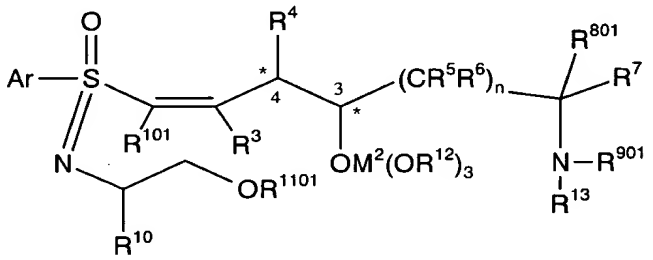
R^5, R^6, R^7 and n have the above meanings,

R^{801} has the meaning of R^8, with any reactive groups, if necessary, being blocked by base-stable protecting groups,

R^{901} is hydrogen or together with R^{801} forms a C_3-C_4-alkylene chain, and

R^{13} is a base-labile amino protecting group which when cleaved leaves behind a nitrogen nucleophile,

to form a stereoisomer of a compound corresponding to the formula IX:



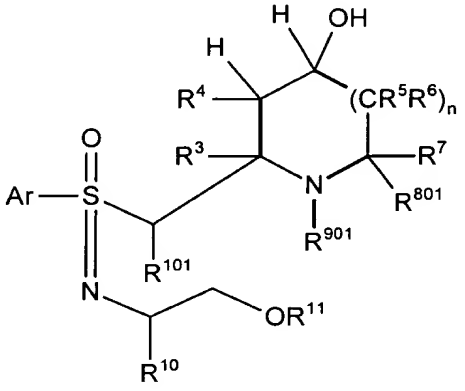
IX

wherein

R^{101}, R^3, R^4, R5, R^6, R^7, R^{801}, R^{901}, R^{10}, R^{1101}, R^{12}, R^{13}, n, Ar and M2 have the above meanings,

and

b) converting the compound of Formula IX by treatment with a base reagent for removing the group R^{13}, into a compound corresponding to formula Xa:



Xa

wherein

R^{101}, R^3, R^4, R^5, R^6, R^7, R^{801}, R^{901}, R^{10}, n and Ar have the above meanings, and

R^{11} is hydrogen or a silyl protecting group,

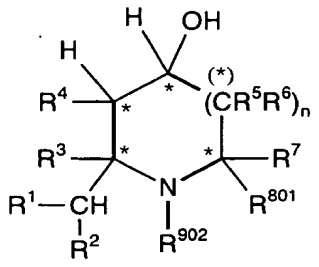
and

if R^{901} is hydrogen, blocking the nitrogen atom in the cyclic parent structure of the resulting compound of Formula Xa with a base-stable protecting group, and

cleaving off any silyl protecting group R^{11} which may still be present;

and

c) for the production of a compound corresponding to formula Ia:



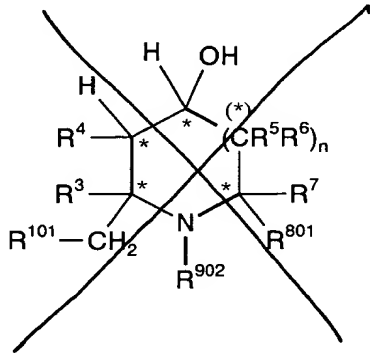
Ia

wherein

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^{801} and n have the above meanings, and

R^{902} stands for a base-stable protecting group or, together with R^{801}, for a C_3-C_4-alkylene chain,

reacting a compound corresponding to formula Xa or a compound produced by cleaving off the silyl protecting group R11 with samarium (II) iodide for the reductive cleavage of the sulfonimidoyl-alkyl bond, ~~in order to obtain a compound corresponding to formula Ib:~~



~~Ib~~

~~wherein~~

~~R^{101}, R^3, R^4, R^5, R^6, R^7, R^{801}, R^{902} and n have the above meanings,~~

and

optionally cleaving off any protecting groups in compounds of Formula Ia, and

optionally reacting the optionally released NH group in the 1-position of the cyclic parent structure with a reagent capable of N-alkylation or a reagent capable of amide formation or blocking the released NH group with an amino protecting group,

thereby obtaining said compound corresponding to Formula Ia'.

18. (Previously presented) A process according to claim 17, for producing a compound corresponding to formula Ib, said process comprising the steps of

(a) cleaving any protecting groups which may be present, and

(b) reacting any free NH group in the 1-position of the cyclic parent structure with

(i) a reagent capable of N-alkylation, or

(ii) a reagent capable of amide formation, or

(iii) a reagent which blocks the free NH group with an amino protecting group.

19. (canceled)

20. (Previously presented) A process according to claim 17, wherein said base-labile amino protecting group is a fluoren-9-yl-methyloxy-carbonyl radical.

21. (Currently amended) A process according to claim ~~20~~ 17, wherein the base reagent comprises piperidine.

22. (Previously presented) A process according to claim 17, wherein toluene is used as a solvent in step a).

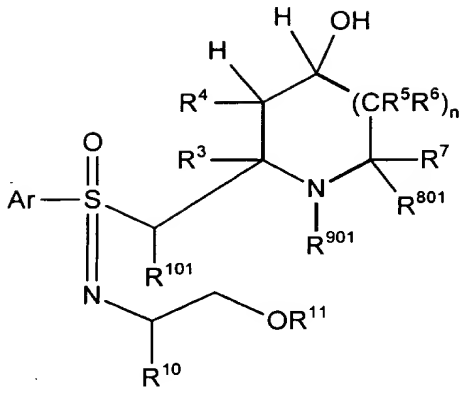
23. (canceled)

24. (Previously presented) A process according to claim 17, wherein R^4 is other than hydrogen in each of the compounds corresponding to formulas Ia', Ia, I b, II, IX and Xa.

25. (Previously presented) A process according to claim 17, wherein R^{1101} is a tert. butyl-dimethylsilyl protecting group or a trimethylsilyl protecting group.

26. (canceled)

27. (Currently amended) A compound corresponding to formula Xa:



Xa

wherein

n is 0 or 1,

R^3 is hydrogen, and

R^4 is hydrogen or lower alkyl or

R^3 and R^4 also together are a C_3-C_6-alkylene chain optionally containing 1 to 3 double bonds or together form the 7, 7-dimethyl [3.1.1] heptyl-system

R^5 is hydrogen or lower alkyl, and

R^6 is hydrogen, and

R^7 is hydrogen,

R^{10} is lower alkyl, or phenyl optionally substituted once in the phenyl ring by lower alkyl or by hydroxy protected with a suitable protecting group, or phenyl-lower alkyl optionally substituted once in the phenyl ring by lower alkyl,

R^{11} is hydrogen or a silyl protecting group,

R^{101} is hydrogen;

R^{801} is hydrogen;

a monocyclic or bicyclic ring system selected from the group consisting of cyclopropyl, cyclopentyl, cyclohexyl, phenyl, ~~p-biomophenyl~~ p-bromophenyl and 3-indolyl;

lower alkyl; phenyl-lower alkyl or lower-alkoxy lower alkyl, with the proviso that when n=0, R^{801} is not phenyl-lower alkyl,

or

R^6 and R^7 also together may form a bond, and

R^5 and R^{801}, together with the carbon atoms to which they are bonded, may form an aromatic C_6-ring system

R^{901} is hydrogen or together with R^{801} forms a C_3-C_4-alkylene chain, and

Ar represents phenyl optionally substituted one to three times by lower alkyl,

wherein the sulfur-containing substituent in the 5-position and the hydroxy group in the 3-position of the cyclic parent structure are in the trans position relative to each other, and

wherein the substituent R^4 in the 4-position and the hydroxy group in the 3-position of the cyclic parent structure are in the cis position relative to each other, or

a compound obtainable by removal of any protecting groups which may be present in said compound corresponding to formula Xa, or

an acid addition salt formed with a free amino group which may be present in said compound corresponding to formula Xa.

28. (Previously presented) A compound according to claim 27, wherein the cyclic structure of formula Xa contains a secondary nitrogen atom protected by a tert. butoxycarbonyl protecting group.

29. (Previously presented) A compound according to claim 27, wherein R^{801} and R^{901} together form a C_3-C_4-alkylene chain.

30. (canceled)

31. (Currently amended) A method of reductive desulfurisation of an alkyl-sulfonimidoyl compound corresponding to formula Xa of claim ~~17~~ 27, wherein R^3, R^4, R^5, R^6, R^7, R^{10}, R^{11}, R^{101}, R^{801}, R^{901} and Ar have the meanings given in claim 17, said method comprising reducing said alkyl-sulfonimidoyl compound with samarium (II) iodide.

32. (Previously presented) A process for stereochemically controlled production of an azacyclic compound according to claim 17, wherein the compound of formula II is produced from a compound selected from the group consisting of (RS)-4(S)-isopropyl-2-p-toluoyl-4,5-dihydro[1,2□6,3]oxathiazol-2-oxide, (Ss)-4(S)-isopropyl-2-p-toluoyl-4,5-dihydro[1,2□6,3]oxathiazol-2-oxide, (Rs)-4(R)-isopropyl-2-p-toluoyl-4,5-dihydro[1,2□6,3]oxa-thiazol-2-oxide, and (SS)-4(R)-isopropyl-2-p-toluoyl-4,5-dihydro[1,2□6,3]-oxathiazol-2-oxide.

33. (Previously presented) A process for stereochemically controlled production of an azacyclic compound according to claim 17, wherein the compound of formula II is produced from [SS,N(1S)]-N-[1-[[tert.-butyldimethylsilyl)-oxy]methyl]-2-methylpropyl]-S-methyl-S-(4-methylphenyl)-sulfoximide or [RS,N(1R)]-N-[1-[[tert.-butyldimethylsilyl)oxy]-methyl]-2-methylpropyl]-S-methyl-S-(4-methylphenyl)sulfoximide.